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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,495	05/18/2005	Stephen G Withers	UBC.P-034	4792

21121 7590 04/25/2006

OPPEDAHL AND LARSON LLP
P O BOX 5068
DILLON, CO 80435-5068

EXAMINER	
RAGHU, GANAPATHIRAM	
ART UNIT	PAPER NUMBER
1652	

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/527,495	WITHERS ET AL.	
	Examiner	Art Unit	
	Ganapathirama Raghu	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 May 2005*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *20-41* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 20-41 are pending in this application.

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I: Claims 20-29, drawn to a mutant form of a glycosidase enzyme selected from among glycosidase enzymes, wherein the mutant enzyme is formed by replacing the amino acid in the active site of an enzyme selected from the group consisting of:

β-glucosidases,

β -galactosidases,

β -mnnnosidases,

β -N-acetyl glucosaminidases,

β -N-acetyl galactosaminidases,

β -xylosidases,

β -fucosidases,

cellulases,

xylanases,

galactanases,

mannanases,

hemicellulases,

amylases,

glucoamylases,

α-glucosidmses,

α -galactosidases,

α -mannosidases,

α -N-acetyl glucosaminidases,

α -N-acetyl galactosaminidases,

α -xylosidases,

α -fucosidases, and

neuraminidases/sialidases

and wherein the mutant enzyme is selected from the group consisting of :

Abg E171A,

E171G,

E171Q,

E171S,

E171T,

E171M,

E171F,

E171L,

E171I, and

E171N.

Group II: Claims 30-36, drawn to method of synthesizing a thioglycoside having a structure A-S-B, wherein S is sulfur and A and B each sugar moieties comprising the steps of combining a donor molecule and an acceptor molecule wherein the donor is selected from:

2,4-dinitrophenyl β-D-glucopyranoside (DNP-G1c);

2,5-dinitrophenyl β-D-mannopyranoside (DNP-Man);

DNP β-cellobioside ,

pNp 4'-deoxy-4'-thio-β-cellobioside and

β-D-glucosyl azide,

and wherein the acceptor is selected from the group consisting of:

para-nitrophenyl 4-deoxy-4-thio-β-D-glucopyranoside,

para-nitrophenyl 4-deoxy-4-thio-β-D-galactopyranoside;

methylumbelliferyl 4-deoxy-4-thio-β-D-glucopyranoside,

4'-deoxy-4'-thio-cellobiose,

pNP 4'-deoxy-4'-thio-β-cellobioside, and

pNP β-D-4-deoxy-4-thio-glucopyranoside.

Group III: Claim 37 drawn to thioglycoside prepared by the method Group II.

Group IV: Claims 38-41, drawn to a fusion protein wherein the binding element is the cellulose binding domain of *Cellulomonas fimi* exoglucanase, wherein the mutant enzyme is a mutant of *Agrobacterium β-glucosidase*, an endoacting retaining β -glycosidase of *Cellulomonas fimi* or an endo-mannanase Man26A of *Cellvibrio japonicus*

The inventions listed as Groups I-IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

An international or a national stage application containing claims to different categories of invention will be considered to have unity of invention if the claims are drawn only to one of the following categories:

1) A product and a process specially adapted for the manufacture of said product or

2) A product and process of use of said product; or

3) A product, a process specially adapted for the manufacture of said product and a use of said product; or

4) A process and an apparatus or means specifically adapted for carrying out the said process; or

5) A product, a process specially adapted for the manufacture of said product and an apparatus or means specifically designed for carrying out the said process.

37 CFR 1.475(c) states: If an application contains more or less than one of the combination of categories of in an invention set forth in paragraph (b) of this section, unity of invention might not be present.

In addition, the PCT does not provide for multiple products or methods within single application, therefore, unity of invention is lacking with regard to Groups I and IV; see 37 CFR 1.475. 37 CFR 1.475 (d) also states: If multiple products, processes of manufacture or uses are claimed, the first invention of the category first mentioned in the claims of the application and the first recited invention of each other categories related thereto will be considered as the main invention in the claims, see PCT Article 17(3)(a) 1.47(c).

37 CFR 1.475(e) further states; the determination whether a group of invention is so linked as to form a single inventive concept shall be without regard to whether the inventions are claimed in separate claims or as alternative within a single claim.

In the instant application the products of Groups I and IV differ substantially from one another to the extent that they have a different structure and function. The polypeptides of Group I have different catalytic activities, whereas the polypeptide of Group IV is a fusion protein with structure and function. The two products can be used exclusive of each other such that they do not share unity of invention under 37 CFR 1.475.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Species Election

Group I claims 23 and 25 are drawn to different species:

This application contains claims directed to the following patentably distinct species of the claimed invention: A mutant enzyme formed by replacing the active site of an enzyme selected from the group of **claim 23** see the Group I list above.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species (i. e., one single enzyme) for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, **claim 23** has been considered as generic.

This application contains claims directed to the following patentably distinct species of the claimed invention: A variant polypeptide, wherein the amino acid sequence comprises at least one amino acid residue from the following list is modified.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species (i. e., one single amino acid position from among the above) for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, **claim 25** has been considered as generic.

Species Election

This application contains claim directed to the following patentably distinct species of the claimed invention:

Group II:

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species (a single **donor group** and a single **acceptor group**) for prosecution on the merits to which the claims

shall be restricted if no generic claim is finally held to be allowable. Currently, **Group II, claims 32** and **33** are generic.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Rejoinder of restricted inventions

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitation of the allowable product claim will be rejoined in accordance with the provisions of M.P.E.P. 821.04. Process claims that depend from or otherwise include all the limitation of the patentable product will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after allowance are governed by 37 C.F.R. 1.312.

In the event of a rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully

examined for patentability in accordance with 37 C.F.R. 1.104. thus, to be allowable, the rejoined claims must meet the criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See "Guidance on Treatment of Product and Process Claims in light of In re Ochiai, In re Brouwer and 35 U.S.C. 103(b), 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that process claims should be amended during prosecution either to maintain dependency on the product claims or otherwise include the limitation of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See M.P.E.P. 804.01.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ganapathirama Raghu whose telephone number is 571-272-4533. The examiner can normally be reached on 8 am - 5.00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 for regular communications and for After Final communications. Any inquiry of a general nature or relating to the status of the application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ganapathirama Raghu, Ph.D.
Patent Examiner
Art Unit 1652

April 05, 2006.

PONNATHAPU ACHUTAMURTHY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600